Operating instructions

Micro-Series

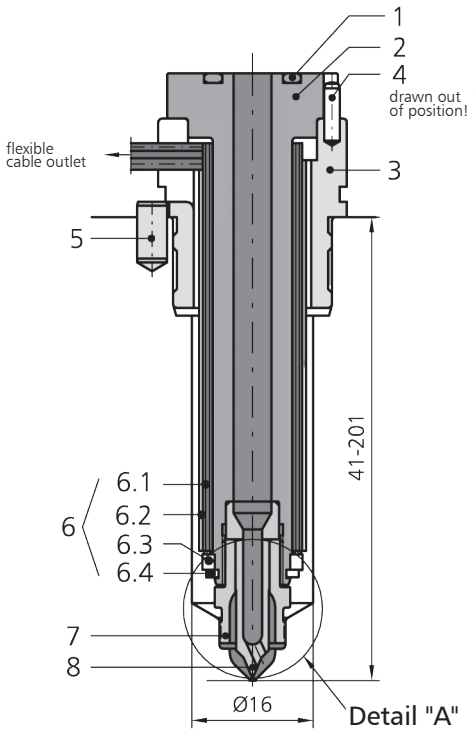
2016 Ring gate RX - A-version and H-version

Plastic Service Group

Stock List:

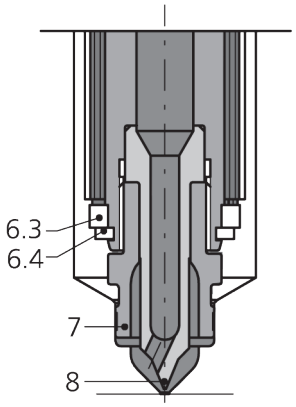
1 O-ring
2 Nozzle body
3 Case
4 Alignment dowel Ø2m6x8
5 Anti-rotation dowel Ø4m6x10
6 Compact heater,
consisting of 6.1-6.4
6.1 Heater
6.2 Reflection tube
6.3 Thermocouple
6.4 Locking-ring
7 Location head
8 Gate insert

A-Version signed

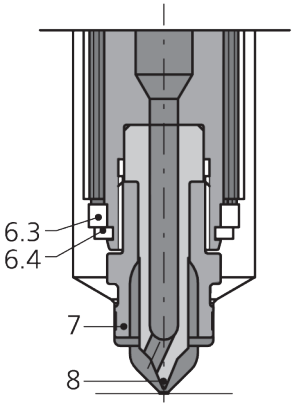


Detail "A"

A-Version



H-Version



⚠ Important Note:

The tool must be grounded! ⏚
If the nozzle is operated outside the tool, then the nozzle must be grounded.

⚠ Connecting cables:

Connecting cables of the nozzles are temperature resistant up to 200°C and must not get in direct contact with the manifold.

We reserve the right to make technical changes

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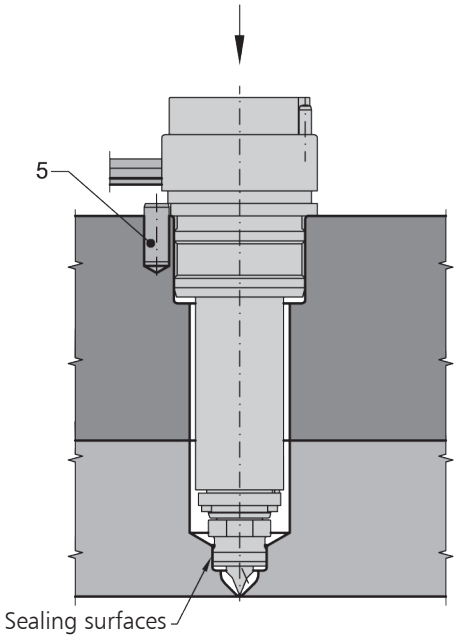
1. Installation of the Micro nozzle

1.1 Installation in the tool

Install the nozzle into the nozzle fixing plate.
Dowel pin (position 5) must be located.

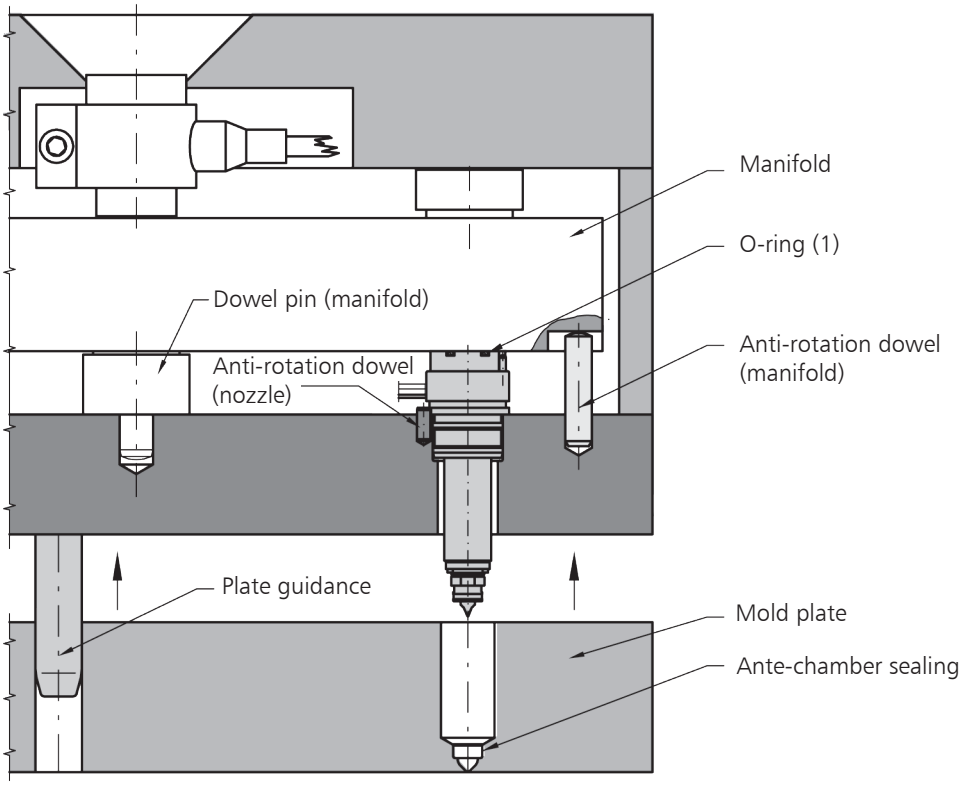
Note: Don't damage Sealing surfaces!



1.2 Assembly of the "Hot Half"

Note: Insert the O-rings (1) into the groove of the nozzle flange before assembly.

- The installation of the manifold can be made, after the height adjustment has already being made following instructions according to PSG.
  (See datasheet "Assembling instruction for standardized hot runner manifolds.")
- Centring pin and dowel pin must be installed.

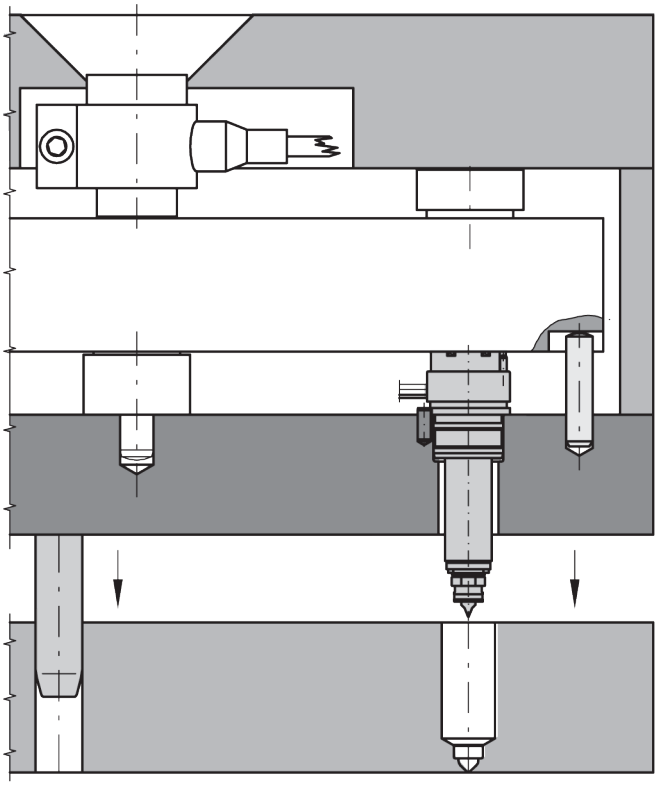


Note: Plate guidance must work before immersing the nozzle into the ante-chamber sealing.

2. Gate insert - dismantling (RX3/RX4/RX5)

2.1 Gate insert-dismantling in the tool

While changing the gate insert leave the micro nozzle in the tool.
Heater remains installed.
To begin the cavity-plate must be pulled-down to reach the gate inserts.
Important:
1. Hot runner system must be cold (max. 40°C).
2. Anti-rotation dowel must be fitted.



2.1a Procedure

- To remove the gate variants RX5 dismantle the gate insert cold.
- In case of gate variant RX3/RX4 heat up the nozzle to 400°C and than dismantle.
  For all 2 variants the width across flats of the centring head is 9 mm..

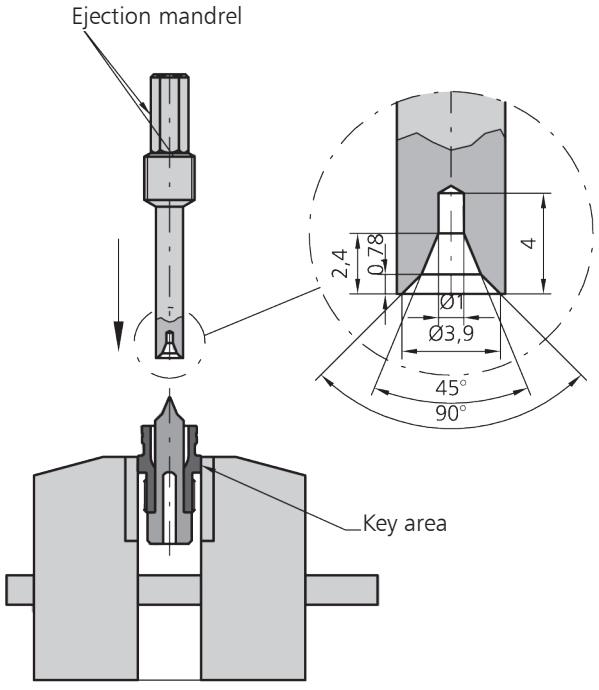
Attention:
Tightening torques see table 3.1.

2.1.b Gate RX3/RX4 and RX5:

Usually the gate insert sticks in the centering head. Then clamp carefully the centering head together with the gate insert at key area in a vice and remove the gate insert carefully out of the centering head with an ejection mandrel.

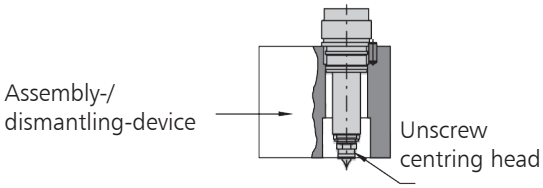
The ejection mandrel can be self made, or purchased from PSG as a complete assembly/dismantling- device. (Art.no. 298410)

Data about Angles are important for manufacturing, otherwise the gate insert could be damaged.
The depth of 4 mm is important so that the gate tip isn't damaged.

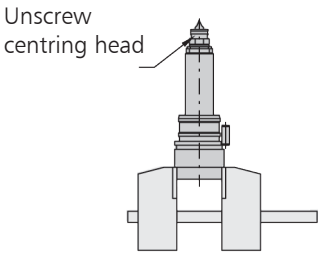


2.2 Gate insert-dismantling outside of the tool

IIf the nozzle isn´t installed, it´s advisable, to put it into the assembly / dismantling-device for changing the gate insert..



If a assembly / dismantling-device isn´t available, clamp the nozzle at the joint of the nozzle body in a vice
(use soft jaws!).
Tightening torques see table 3.1.



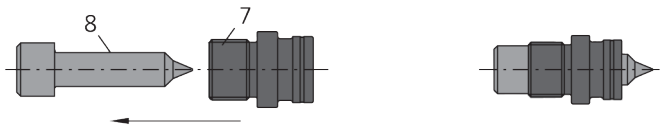
⚠ Than see procedure 2.1.a und 2.1.b

3. Gate insert - assembly

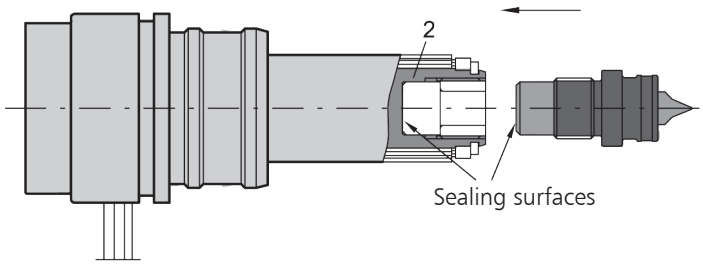
We recommend to assemble the gate insert only when the nozzle is already installed. The heater should be assembled. This means especially the gate insert type RX3/RX4, when it is needed to heat the nozzle up 400°C (see point 3.1). Note, that the sealing surfaces are free from plastic.

Example: RX-gate:

Step 1: Assemble the gate insert (8) in the centering head (7).



Step 2: Now both are screwed together into the nozzle body (2).



⚠ Finally, tighten up to the recommended torque, see table 3.1.
Note the temperature!

3.1 Tightening torques for the 2016 gate insert types

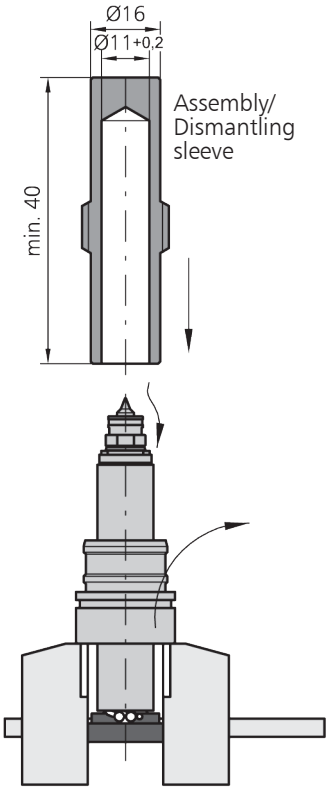
Gate insert	Torque	Spanner opening
RX5	8 Nm (nozzle cold)	SW 9
RX3/RX4	15 Nm cold tighten and then to 400°C heat and with 15 Nm pull tight again! **Important!**	SW 9

4. Heater dismantling

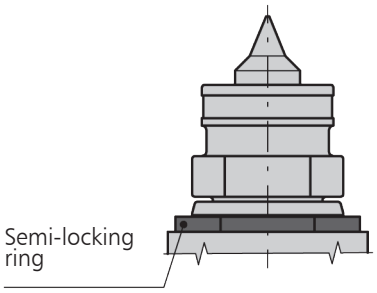
- The nozzle must be taken out of the tool.
  Remove the case by inserting the nozzle at the flange joint of the nozzle body into a vice with soft jaws.
  Don't tighten the vice, otherwise the nozzle body will not be pressed down wards out of the case.

- Be careful that the heater outlet / sleeve does not lay on the jaws of the vice, otherwise it will be damaged or pulled off by pressing down.

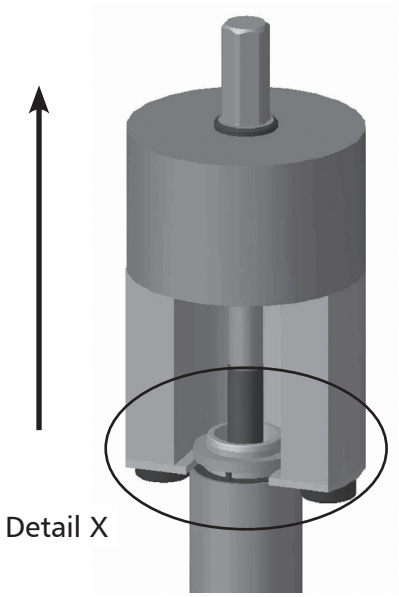
- The nozzle body can be pressed out of the case with the help of the assembly/dismantling sleeve.
  This can be self made, or purchased from PSG as a complete assembly/ dismantling-device.



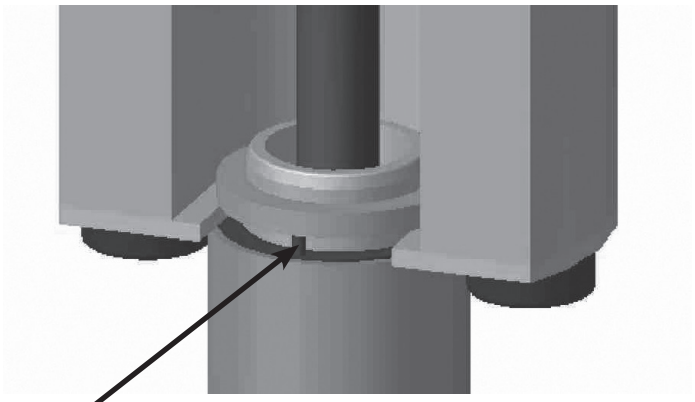
- Remove the semi-locking ring.



Afterwards the compact heater with the ring thermocouple can be removed.
How to use ring thermal extractor (see pictures).



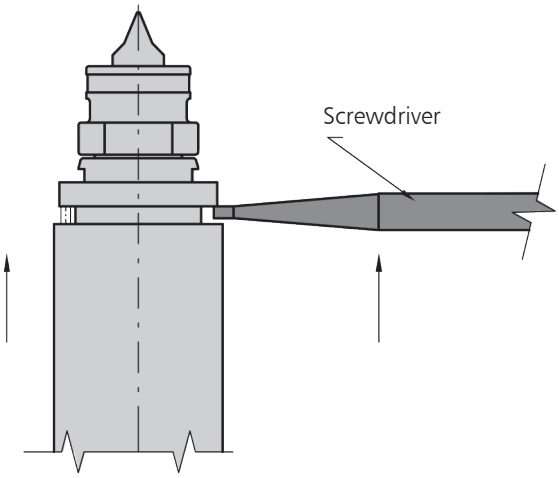
Detail X



⚠

Note:
Push the heater push down at the same time and be very carefully, since the ring thermocouple can easily break of.

Alternatively, press up (don´t lever) the ring at the thermocouple with a screwdriver from the nozzle body gently step by step.



5. Heater assembly

Supplied:

Heater +

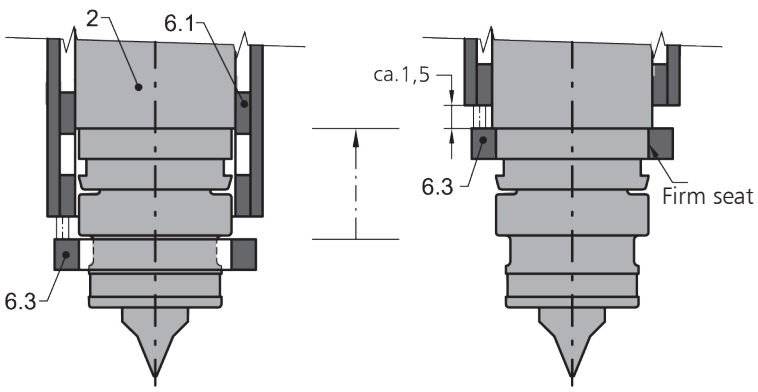
Semi-locking ring (circlip)

View:

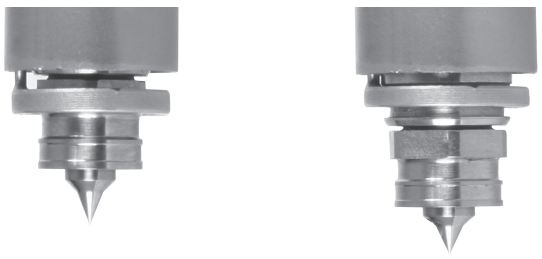
Adjacent:
Bend the lead exit radial by hand.

Note, that the outlet fits in the cut out from the case.

- The heater easily onto the nozzle body.
  Push the ring thermocouple (6.3) carefully onto the nozzle body (2).
  Push down the heater (6.1) at the same time. There must always be a gap between heater (6.1) and ring thermocouple (6.3) of approx. 1.5 mm.
  A assembly/dismantling sleeve (see next page) can be used to press on the ring thermocouple (6.3).



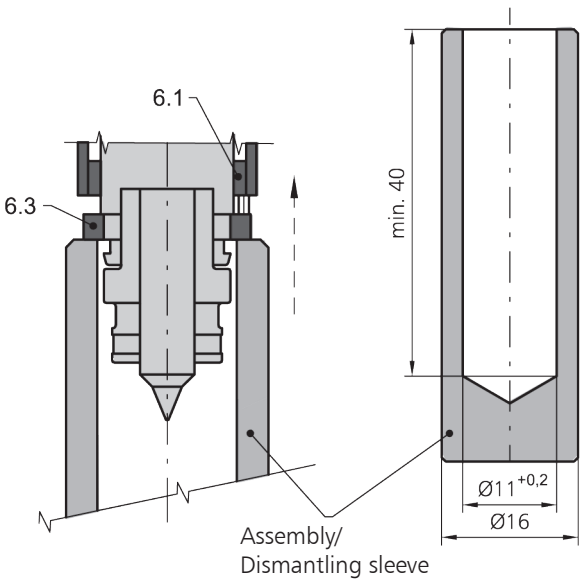
⚠ Firm seat must be ensured.



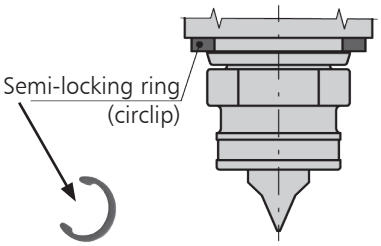
⚠ Rotate heater to ensure that the cable outlet aligns with the cut-out in the case.

The shown assembly/dismantling sleeve case can be manufactured by the customer, or can be bought from PSG as a complete unit.

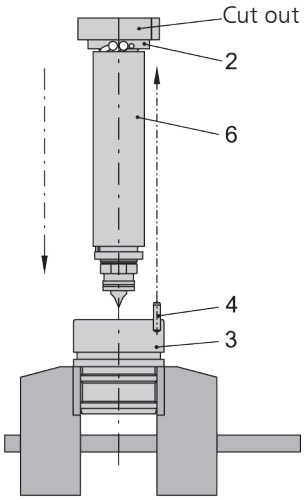
Put the assembly/dismantling sleeve on the ring thermocouple (6.3) and press the ring thermocouple (6.3) carefully on the front of the nozzle body (by hand) while pushing down the heater (6.1) at the same time.

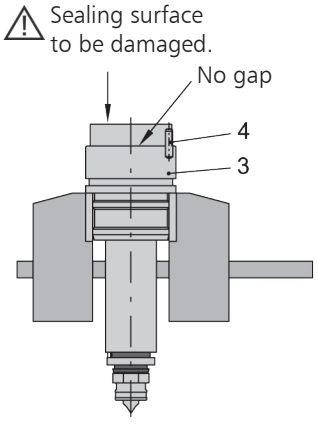


- Semi-locking ring is to assemble.
  We recommend to use the new.
  (Spare part-heater inclusive)



- Clamp the case (3) carefully into a vice (soft jaws). The cylindrical pin (4) must be present. Now lay the nozzle with the assembled compact heater (6) on the case (3). The cylindrical pin must align in the cut out on the nozzle body (2) and the cut out on the case (3) must match to the cable outlet of the compact heater. With light strikes (best with a plastic hammer) push the body (2) onto the case (3), until no gap is remaining.





6. O-Ring

- Test phase, short-time serial production:
  It is not necessary to exchange the o-ring if no plastic has penetrated into the O-ring groove.
  Otherwise the o-ring has to be exchanged!

- For longer serial production:
  If maintenance for the tool is necessary, it is recommended that the o-rings are replaced, even if no plastic has penetrated into the o-ring groove.

7. Assembly- / Dismantling device

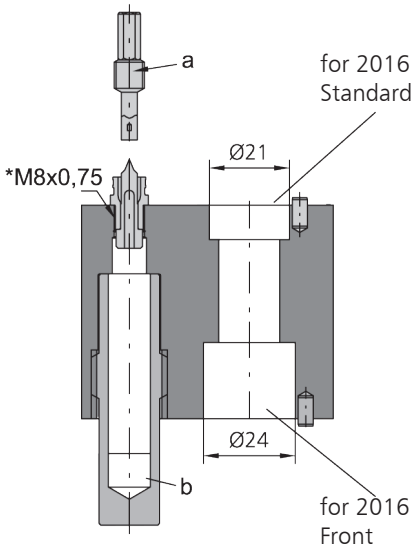
- For the assembly -, dismantling device it is planned to have diameter 21mm for the 2016 micro nozzle and with diameter 24mm for the 2016 micro frontal nozzle.

- The ejection mandrel (a) and the assembly/dismantling sleeve (b) are components of the device.

- The M8x0,75 thread is used for the ejection mandrel gate insert. At the same time the assembly/dismantling sleeve is used as a receiving tank for the gate insert.

- The centering head lays flat on the device and the gate insert can be removed with ejection mandrel from the centering head.

- Order number for assembly-, dismantling device is 298 410.



* You can see a screwed centring head (7) with gate insert (8).